Unit 1:   Chapter 1. INTRODUCTION TO COMPUTER GRAPHICS

Applications of Computer Graphics (representative of computer Graphics)

1) **User Interface :** Computer Graphics is used to interact with various devices through Graphical user interface, which led to easy interaction.

2) **Plotting :** Plotting of Graphs and charts.

This is an area of computer Graphics which uses 2D and 3D graphs to represent data in engineering science & technical fields.

3) **Office Automation ey electronic publishing.**

This field uses computer Graphics for creation and dis pe dissemination of information which makes use of inhouse printing & publication of various documentations.

4) **Computer Aided drafting and design.**

In CAD, interactive Graphics is used for designing various components & systems corresponding to electrical, mechanical, electronics, civil, & other fields.

5) **Simulation & Animation.**

Computer Graphics is used for simulation of various Real time models in science & technology & is also used for different character animations in entertainment.

6). Art And commerce.

Ohis field uses computer Graphics for creating various realistic pictures that promotes the Trade and eommerce.
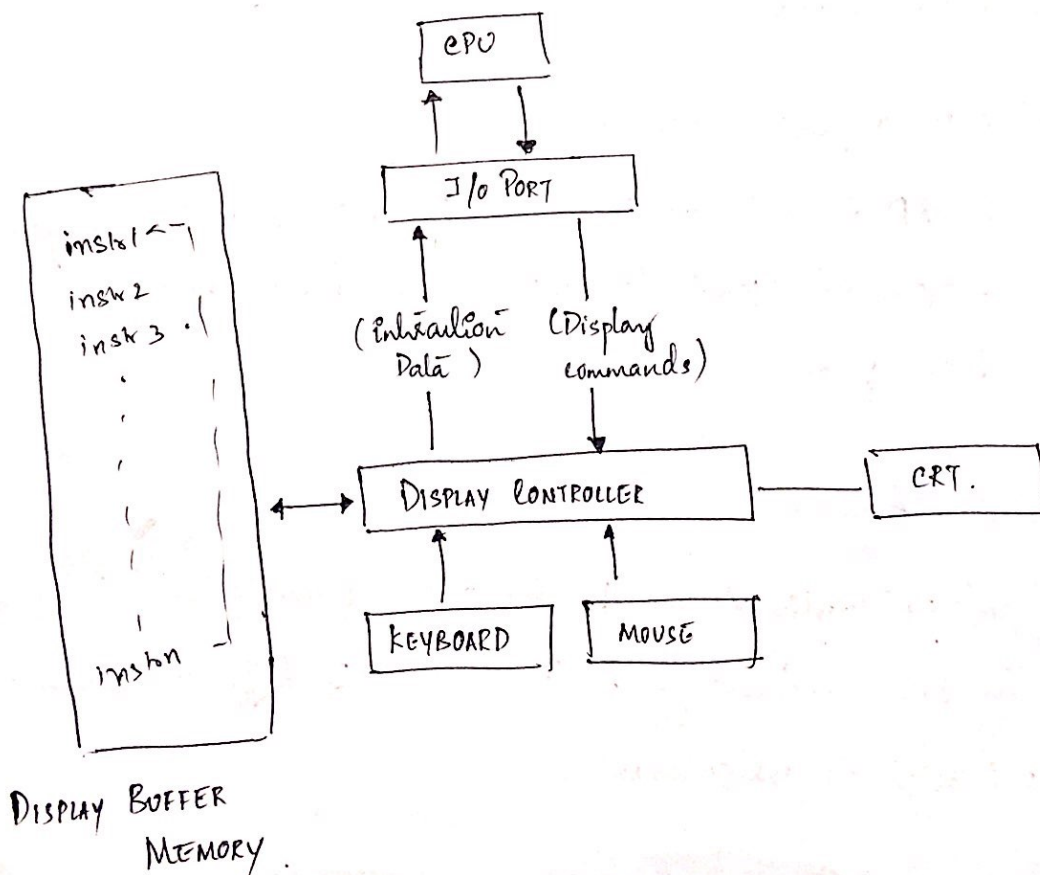
9). Process control.

In this field, computer Graphics is used to perform automatically control the various processes that takes place in a distance.

8). Cartography

This is the area which uses computer Graphics for representation of various Geographic, weather maps & so on.

VECTOR DISPLAY SYSTEM.

Architecture of vector display system.
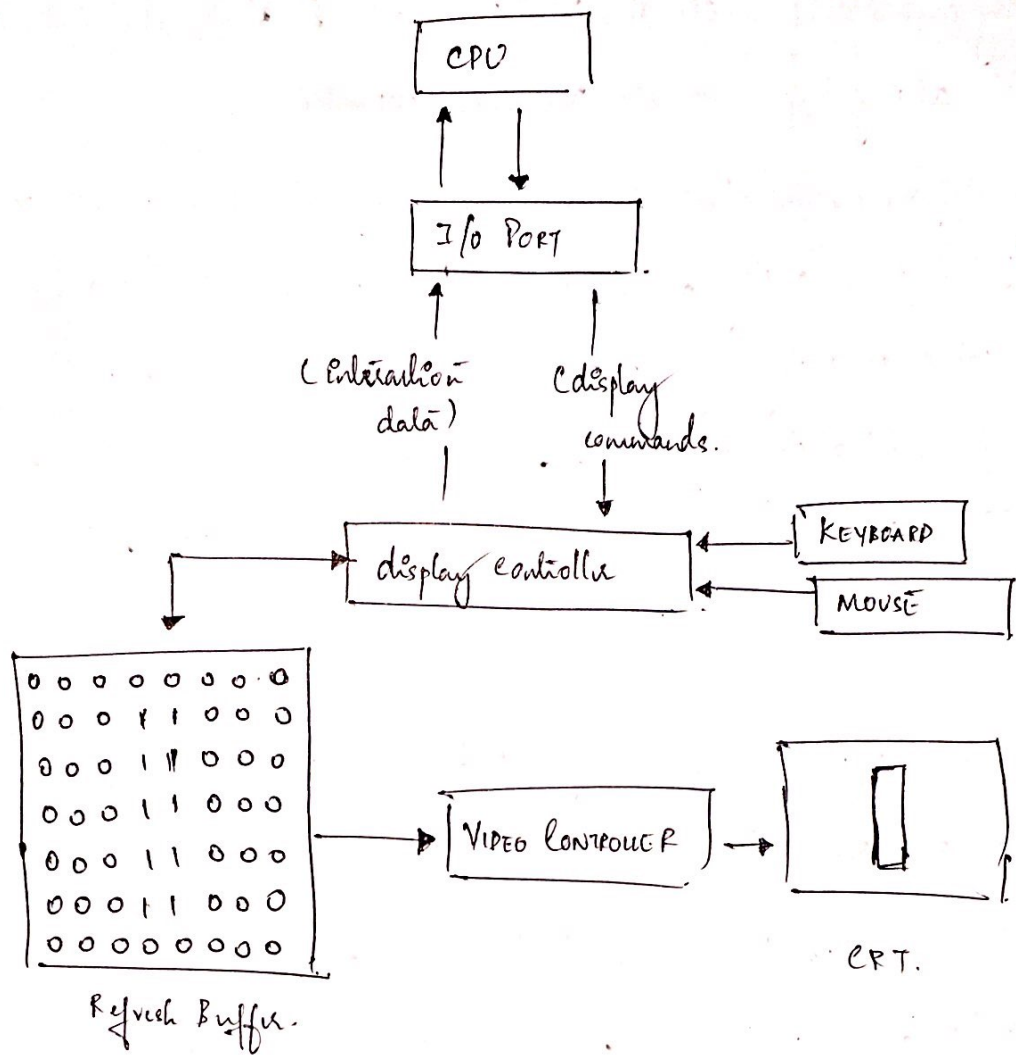

DISPLAY BUFFER
  MEMORY.

- As shown in figure, Display controller is connected to I/o components through CPU. This display controller takes the responsibility of retrieving the required display commands from CPU through I/o Port & stores the retrieved instructions in display buffer memory for later execution.

- The display buffer memory stores the required list of instructions that r required for plotting display on the screen. This set of instructions are collectively called as display Programs. display controller then interprets each instruction from the display program & executes sends the corresponding signals that controls the electron deflecting head of the CRT monitor to display the required image on the monitor.

- In Vector display system, Beam is deflected from end point to end point hence it is called as Random Scan.

- The Instructions in display buffer needs to be executed repeatedly to avoid the flickering of screen since, electronic Beam deflected on the Phosphor coating gets decade after decayed after a small span of time. Hence, this Buffer is also called as REFRESH BUFFER.

DISADVANTAGE.

① expensive
② as the instruction size increases, more the chances of screen flickering.
③ can plot only image like line.

Architecture Of Raster Display System.

Refresh Buffer.

CRT.

→ As this display system was introduced to overcome disadvantages of random scan technique. As shown in above figure, the display image is stored in the form of 1's and 0's in the Refresh buffer.

→ Display controller basically receive the commands from the User that is required for display from the User & converts the commands into stream of 0's & 1's & stores in Refresh buffer.

→ Video controller then interprets each bits of 0's & 1's from the refresh buffer & produces the image on screen by method of scanning one line at a time from top to bottom & then

go back to the top.

→ DIFFERENCES OF RASTER AND VECTOR.

Vector Scan.	Raster Scan.
→ ① Beam is moved b/w END POINTS..	→ ① Beam is moved all over the screen. one scan line at a time from top to bottom & then back to top in fixed direction.
→ ② ... displays flickers when instruction becomes too large.	→ display is independent of the instructions.
→ ③ no scan-conversion	→ scan conversion is required.
→ ④ no scan conversion hardware	→ scan conversion hardware is required.
→ ⑤ produces smooth display	→ produces jagged display.
→ ⑥ cost is more.	→ less cost.
→ ⑦ can draw only lines & characters	→ can display anything.